Claim Amendments

Claim 1 (currently amended): An electron gun comprising:

an RF cavity having a first side with an electron emitting surface and a second side with an electron transmitting and emitting section; and

a mechanism for producing an oscillating force which is applied to the emitting surface and the transmitting and emitting section so electrons are directed between the emitting surface and the transmitting and emitting section[[to]], wherein some of said electrons contact the emitting surface to generate additional electrons and said additional electrons contact the transmitting and emitting section to generate further additional electrons or escape the cavity through the transmitting and emitting section, with a resulting gain of electrons in a unidirectional flow after a time t is $[\delta_2\delta_1(1-T)]^{(\omega t/2\pi)}$, where δ_1 is the number of secondary electrons emitted from the emitting surface, T is the ratio of transmitted to incident electrons for the transmitting and emitting section, δ_2 is the section electron secondary yield and ω is the radian RF frequency.

Claim 2 (previously presented): A gun as described in Claim 1 wherein said transmitting and emitting section isolating the cavity from external forces to the cavity.

Claim 3 (previously presented): A gun as described in Claim 2 wherein the transmitting and emitting section includes a transmitting and emitting double screen.

Claim 4 (previously presented): A gun as described in Claim 3 wherein the producing mechanism includes a mechanism for producing an oscillating electric field disposed adjacent the RF cavity that provides the oscillating force and has a radial component that confines the electrons to a region between the double screen and the emitting surface.

Claim 5 (previously presented): A gun as described in Claim 4 wherein the double screen is of an annular shape.

Claims 6 and 7 (canceled).

Claim 8 (previously presented): A gun as described in Claim 4 including a mechanism for producing a magnetic field disposed adjacent the RF cavity to force the electrons to stay between the double screen and the emitting surface.

Claim 9 (previously presented): A method for producing electrons characterized by the steps of:

moving at least a first electron in a first direction;

striking a first area with the first electron;

producing additional electrons at the first area due to at least a first electron;

moving the additional electrons from the first area to a second area; and

transmitting the additional electrons through the second area and creating $\delta_2[\delta_1(1-T)]$ secondary electrons due to the additional electrons from the first area striking the second area, δ_1 is the number of secondary electrons emitted from the second area, T is the ratio of transmitted to incident electrons for the second area, and δ_2 is the second area electron secondary yield.